

Attorney's Docket No.: 06618-045002

Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

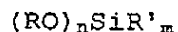
In the claims:

Please amend the claims as follows:

1. **(Currently Amended)** A method of preparing a lipid membrane, the method comprising:

(a) providing a lipid membrane comprising a lipid monolayer, bilayer or multilayer;

(b) providing a plurality of silyl lipid molecules integrally-associated with the lipid membrane of (a), wherein each silyl lipid molecule comprises at least one silanol group; and wherein said silyl lipid molecule is of the formula:



wherein:

R is selected from a group consisting of C₁-C₅₀ alkyl;

R' is selected from a group consisting of (CH₂)_qA and OSiR₃;

A is selected from a group consisting of hydrogen, COO⁻, OH, COOH, N⁺R₁R₂R₃, NHR'', SH, SR'' and C₁-C₅₀ alkyl;

R₁, R₂, R₃ and R'' are selected from a group consisting of (CH₂)_qCH₃ and (CH₂)_qSi(OR)₃;

q is a number from 1 to 50;

n is a number from 1 to 4; and

m is a number from zero to 3; and

(c) cross-linking, via a siloxane bond, at least one silanol group from a first silyl lipid with at least one silanol group from a second silyl lipid; and

(d) further cross-linking the silyl lipids to an encapsulating material or matrix.

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2. (Previously Presented) A method of preparing an encapsulated Langmuir lipid membrane, the method comprising:
- (a) providing a lipid monolayer, bilayer or multilayer membrane comprising a plurality of silyl lipid molecules integrally-associated with the lipid monolayer, bilayer or multilayer membrane, wherein each silyl lipid molecule comprises at least one silanol group;
 - (b) cross-linking, via a siloxane bond, at least one silanol group from a first silyl lipid with at least one silanol group from a second silyl lipid;
 - (c) providing an upper layer of encapsulation material;
- and
- (d) providing a lower layer of encapsulation material or a lower layer of supporting substrate,
- wherein the lipid monolayer, bilayer or multilayer membrane is positioned between the upper layer and the lower layer.
3. (Cancelled)
4. (Currently Amended) A method of modifying the pH of a patients blood during renal dialysis ~~a fluid comprising plasma and suspended formed elements,~~ the method comprising contacting the patients blood ~~the fluid~~ with a lipid membrane prepared by the method claim 2, wherein the lipid membrane is associated with an acidic compound capable of modifying the pH of the blood fluid.

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5. (Previously Presented) The method of claim 2 wherein said silyl lipid is of the formula:



wherein:

R is selected from a group consisting of C₁-C₅₀ alkyl;

R' is selected from a group consisting of (CH₂)_qA and OSiR₃;

A is selected from a group consisting of hydrogen, COO⁻, OH, COOH, N⁺R₁R₂R₃, NHR'', SH, SR'' and C₁-C₅₀ alkyl;

R₁, R₂, R₃ and R'' are selected from a group consisting of (CH₂)_qCH₃ and (CH₂)_qSi(OR)₃;

q is a number from 1 to 50;

n is a number from 1 to 4; and

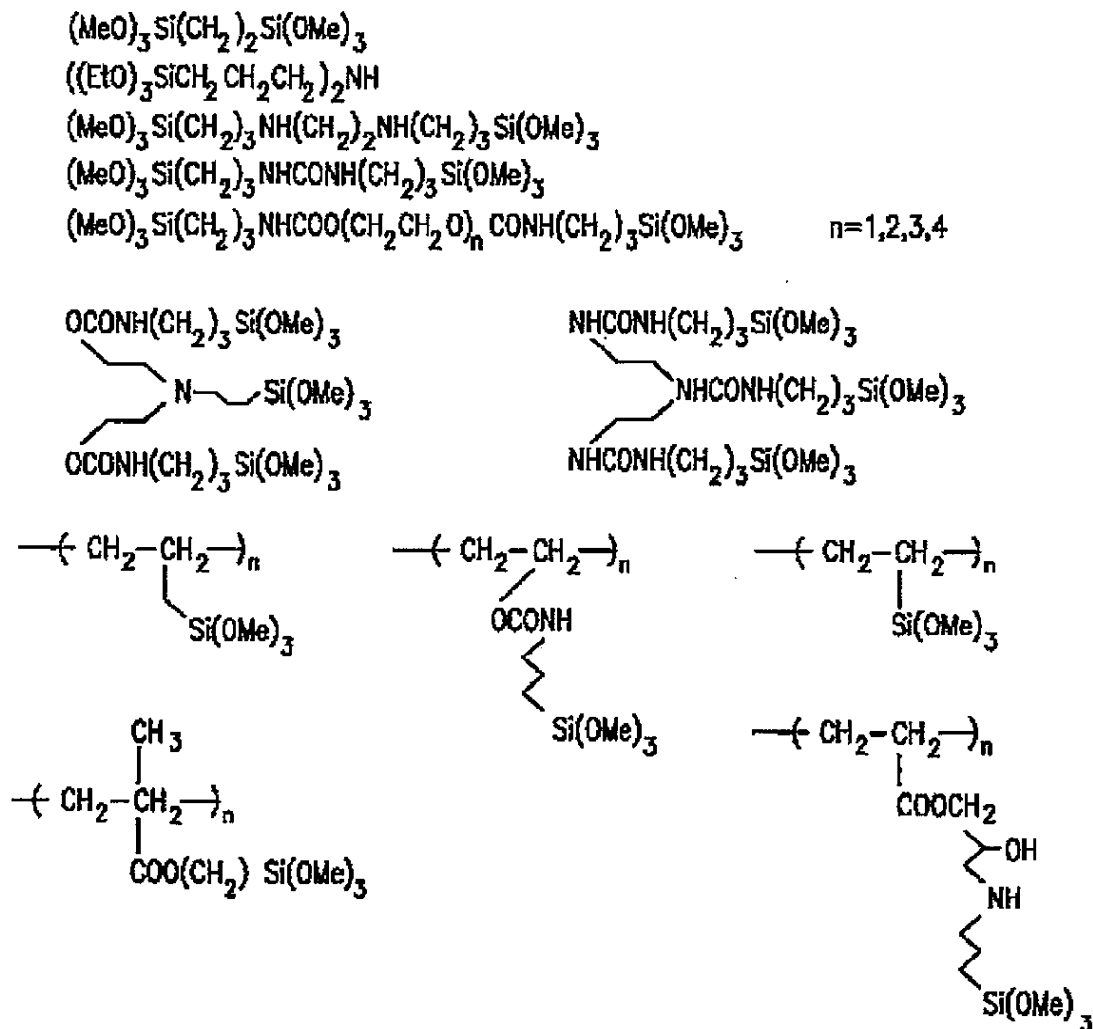
m is a number from zero to 3.

6. (Previously Presented) The method of claim 2 wherein said encapsulation material is an inorganic-organic hybrid mixture sol.

7. (Cancelled)

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8. (Previously Presented) The method of claim 6 wherein said hybrid mixture sol is prepared from precursor molecules of the following formula:



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9. (Previously Presented) A method for stabilizing a lipid membrane, the method comprising:

a) providing a lipid membrane comprising:

- i) a lipid monolayer, bilayer or multilayer;
- ii) phospholipids; and
- iii) protein,

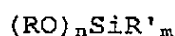
b) providing a plurality of silyl lipid molecules integrally-associated with the lipid membrane of a), wherein each silyl lipid molecule comprises at least one silanol group; and

c) cross-linking, via a siloxane bond, at least one silanol group from a first silyl lipid with at least one silanol group from a second silyl lipid, thereby stabilizing the lipid vesicle.

10. (Canceled)

11. (Canceled)

12. (Previously Presented) The method of claim 9, wherein the silyl lipid is of the formula:



wherein:

R is selected from a group consisting of C₁-C₅₀ alkyl;

R' is selected from a group consisting of (CH₂)_qA and OSiR₃;

A is selected from a group consisting of hydrogen, COO⁻, OH, COOH, N⁺R₁R₂R₃, NHR'', SH, SR'' and C₁-C₅₀ alkyl;

R₁, R₂, R₃ and R'' are selected from a group consisting of (CH₂)_qCH₃ and (CH₂)_qSi(OR)₃;

q is a number from 1 to 50;

n is a number from 1 to 4; and

m is a number from zero to 3.

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13. (Previously Presented) The method of claims 1 or 9, wherein the lipid membrane forms a vesicle.

14. (Currently Amended) The method of claims ~~1 or~~ 9, wherein the silyl lipids are further cross-linked to an encapsulation material.

15. (Currently Amended) The method of claims 1 or 14, wherein the encapsulation material is selected from the group consisting of sol-gel matrix, hybrid mixture sol-gel matrix and glass matrix.

16. (Previously Presented) The method of claim 14, wherein the sol-gel matrix is an inorganic-organic hybrid mixture sol.

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17. (Previously Presented) The method of claim 15 wherein the hybrid mixture sol-gel matrix is prepared from precursor molecules of the following formula:

